

From glowbugs@devp214.theporch.com Thu Jan 30 12:37:24 1997  
Return-Path: <glowbugs@devp214.theporch.com>  
Received: from devp214.theporch.com (devp214.theporch.com [192.150.244.22])  
by uro.theporch.com (8.8.5/AUX-3.1.1)  
with ESMTP id MAA25268 for <shimshon@theporch.com>;  
Thu, 30 Jan 1997 12:37:22 -0600 (CST)  
From: glowbugs@devp214.theporch.com  
Received: from devp214.theporch.com (localhost [127.0.0.1])  
by devp214.theporch.com (8.8.4/SCO-5.0.2) with SMTP  
id SAA01838; Thu, 30 Jan 1997 18:35:42 GMT  
Date: Thu, 30 Jan 1997 18:35:42 GMT  
Message-Id: <199701301835.SAA01838@devp214.theporch.com>  
Errors-To: ws4s@infoave.net  
Reply-To: glowbugs@devp214.theporch.com  
Originator: glowbugs@devp214.theporch.com  
Sender: glowbugs@devp214.theporch.com  
Precedence: bulk  
To: Multiple recipients of list <glowbugs@devp214.theporch.com>  
Subject: GLOWBUGS digest 431  
X-Listprocessor-Version: 6.0 -- ListProcessor by Anastasios Kotsikonas  
X-Comment: Please send list server requests to listproc@theporch.com  
Status: 0

### GLOWBUGS Digest 431

Topics covered in this issue include:

- 1) 7051 QRG -- is it QRT?  
by wallace@world.std.com (Andy Wallace)
- 2) 10m amp  
by Jeffrey Herman <jeffreyh@hawaii.edu>
- 3) Re: 10m amp  
by mjsilva@ix.netcom.com (michael silva)
- 4) Re: Grid Leak resistor/capacitor duo in regens  
by mjsilva@ix.netcom.com (michael silva)
- 5) 10m amp  
by ralph.hartwell@emachine.com (Ralph Hartwell)
- 6) Re: Grid Leak resistor/capacitor duo in regens  
by jkh@lexis-nexis.com (John Heck)
- 7) Re: 10m amp  
by jeffd@coriolis.com (Jeff Duntemann)
- 8) 807's & 1625's @ 10M  
by jeffd@coriolis.com (Jeff Duntemann)

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Date: Wed, 29 Jan 1997 21:22:00 GMT  
From: wallace@world.std.com (Andy Wallace)

To: glowbugs@theporch.com  
Subject: 7051 QRG -- is it QRT?  
Message-ID: <32f2bf10.4651653@world.std.com>

Have heard some activity on the 3579 freq of late, but not too much on 7051.=20

I have my Drake twins on the air now and would love a CW chat. Will try calling CQ BA around 0000Z. I might be able to load up on 80 but would much prefer 40m as I can tune that no problem!

Listen for KA1GTT.

--Andy  
wallace@world.std.com  
---  
Curly: Oh....short wave?  
Moe: No! Poimanent.=20  
<BONK!>  
(THEY STOOGE TO CONGA, 1943)

-----  
Date: Wed, 29 Jan 1997 14:59:05 -1000  
From: Jeffrey Herman <jeffreyh@hawaii.edu>  
To: Glowbugs List <glowbugs@theporch.com>  
Subject: 10m amp  
Message-ID: <Pine.GS0.3.93.970129145452.6712A-100000@uhunix3>

I've got an 11m rig that I'm converting to 10m and would like to built a single tube amp for it. For 5w drive what tube do you suggest for an output of say, 25-30w at 28 Mc? (Only requirements are cheap and easily available!)

Jeff KH2PZ

-----  
Date: Wed, 29 Jan 1997 23:03:41 -0600 (CST)  
From: mjsilva@ix.netcom.com (michael silva)  
To: glowbugs@theporch.com  
Subject: Re: 10m amp  
Message-ID: <199701300503.XAA05520@dfw-ix13.ix.netcom.com>

Jeff wrote:

>

>I've got an 11m rig that I'm converting to 10m and would like to  
>built a single tube amp for it. For 5w drive what tube do you  
>suggest for an output of say, 25-30w at 28 Mc? (Only requirements  
>are cheap and easily available!)

If the rig is designed for 12 operation a natural choice would be a 1625 (12v-heater 807). They're only around \$4 and getting 25-30 Watts out should be a snap. You'd only need 1/2 Watt or less of drive, unless you ran the amplifier grounded-grid, but then as I remember you want to disconnect the supressor grid from the cathode and connect it to ground which means opening up the base and cutting wires.

73,  
Mike, KK6GM

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Date: Wed, 29 Jan 1997 21:31:27 -0800  
From: mjsilva@ix.netcom.com (michael silva)  
To: glowbugs@theporch.com  
Subject: Re: Grid Leak resistor/capacitor duo in regens  
Message-ID: <199701300531.VAA09702@dfw-ix6.ix.netcom.com>

You wrote:

>  
>  
>Could someone comment on the function of the parallel grid leak  
>capacitor and resistor connected to the grid of the detector tube in a  
>regenerative receiver? Does this circuit control the phasing of the  
>feedback and affect the frequency of the RF output of the detector? My  
>newly completed regen (the erstwhile reluctant regen) gives a rough,  
>raspy note to CW signals.

Well, I can give it a try...

The function of the grid capacitor and grid leak resistor is to provide a self-adjusting negative bias to the grid of the tube. As I understand it, through a process of grid rectification (for hi-level grid signals) or contact potential (?) (electrons impacting on the grid, for lo-level grid signals), a negative charge builds up on the grid side of the grid capacitor. This charge would build up until the tube was driven into cutoff unless a way is provided to return the electrons to the cathode (let them "leak" off the grid), which is the purpose of the grid leak resistor. The process is self-regulating, since a larger signal on the grid, or a drop in grid bias, will result in more charge building up on the capacitor, increasing the bias again. Altering the values of the capacitor and resistor adjusts the

operating point and the input loading, and is regarded (by me at least) as something of a black art.

Historically the first grid-leak circuits often didn't have a resistor, just a capacitor. The leaking would take place either through the gas in the tube or perhaps along the poorly insulated socket, etc. Not surprisingly some tubes worked much better than others, since the gas content of a batch of "identical" tubes would be all over the scale. The less gassy ("harder") tubes would often block since they didn't have a leakage path, and various people discovered that just touching the grid contact, or drawing a pencil line from the grid to the cathode, would bring the tube back into operation.

Notice that as regards the DC leakage path, placing the grid resistor from grid to cathode or across the grid capacitor is the same, since the side of the capacitor away from the grid will be at ground potential through the coil.

73,  
Mike, KK6GM

-----  
Date: Thu, 30 Jan 1997 04:02:00 GMT  
From: ralph.hartwell@emachine.com (Ralph Hartwell)  
To: glowbugs@theporch.com  
Subject: 10m amp  
Message-ID: <9701292356312694@emachine.com>

J>I've got an 11m rig that I'm converting to 10m and would like to  
J>built a single tube amp for it. For 5w drive what tube do you  
J>suggest for an output of say, 25-30w at 28 Mc? (Only requirements  
J>are cheap and easily available!)

807

1625

Ralph W5JGV

---  
, QMPro 1.53 , Death is a nonmaskable interrupt.

-----  
Date: Thu, 30 Jan 97 08:56:13 EST  
From: jkh@lexis-nexis.com (John Heck)

To: glowbugs@devp214.theporch.com, mjsilva@ix.netcom.com  
Subject: Re: Grid Leak resistor/capacitor duo in regens  
Message-ID: <9701301356.AA12766@beans.lexis-nexis.com>

>  
> You wrote:  
> >  
> >  
> > Could someone comment on the function of the parallel grid leak  
> > capacitor and resistor connected to the grid of the detector tube in a  
> > regenerative receiver? Does this circuit control the phasing of the  
> > feedback and affect the frequency of the RF output of the detector? My  
> > newly completed regen (the erstwhile reluctant regen) gives a rough,  
> > raspy note to CW signals.  
>  
> Well, I can give it a try...  
>  
> The function of the grid capacitor and grid leak resistor is to provide  
> a self-adjusting negative bias to the grid of the tube. As I  
> understand it, through a process of grid rectification (for hi-level  
> grid signals) or contact potential (?) (electrons impacting on the  
> grid, for lo-level grid signals), a negative charge builds up on the  
> grid side of the grid capacitor. This charge would build up until the  
> tube was driven into cutoff unless a way is provided to return the  
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> purpose of the grid leak resistor. The process is self-regulating,  
> since a larger signal on the grid, or a drop in grid bias, will result  
> in more charge building up on the capacitor, increasing the bias again.  
> Altering the values of the capacitor and resistor adjusts the  
> operating point and the input loading, and is regarded (by me at least)  
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>  
> Historically the first grid-leak circuits often didn't have a resistor,  
> just a capacitor. The leaking would take place either through the gas  
> in the tube or perhaps along the poorly insulated socket, etc. Not  
> surprisingly some tubes worked much better than others, since the gas  
> content of a batch of "identical" tubes would be all over the scale.  
> The less gassy ("harder") tubes would often block since they didn't  
> have a leakage path, and various people discovered that just touching  
> the grid contact, or drawing a pencil line from the grid to the  
> cathode, would bring the tube back into operation.  
>  
> Notice that as regards the DC leakage path, placing the grid resistor  
> from grid to cathode or across the grid capacitor is the same, since  
> the side of the capacitor away from the grid will be at ground  
> potential through the coil.  
>

> 73,  
> Mike, KK6GM  
>  
>

I might add another 2 cents to this discussion, and someone please correct me if I'm wrong. The way I understand this is that the resistor functions as a grid leak in exactly the way as mike described above. But further, the cap and resistor values

are selected such that the RC circuit they form has a time constant which is long for RF but short for AF. Thus, the cap discharges at an AF rate, following the amplitude envelope of the modulated RF. This provides the detector action which imposes a rectified AF current on the grid. This is then amplified by the plate circuit and the RF is filtered off(bypassed to ground) leaving an AF current to pass

to the audio stage which follows it. This process of detection contrasts with plate

detection where the grid bias is set such that the signal drives the tube into cutoff

during the negative part of the cycle and thus a rectified current is produced in the plate circuit and amplified there as well. In that case the AF is developed across a similarly timed RC circuit in the plate circuit and passed to the audio with appropriate RF filtering.

Regards,  
John Heck, KC8ETS  
1009 Donson Drive  
Dayton, Ohio 45429  
(513)865-7036(work)  
jkh@lexis-nexis.com

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Date: Thu, 30 Jan 1997 08:41:02 -0700  
From: jeffd@coriolis.com (Jeff Duntemann)  
To: jeffreyh@hawaii.edu  
Cc: glowbugs@theporch.com  
Subject: Re: 10m amp  
Message-ID: <1.5.4.32.19970130083400.0098b0f4@165.247.88.2>

Jeff--

I'm by no means an expert, but from my experience I would suggest a 6146B. They're easily available, though what "cheap" means is unclear here. I got a box full of 829Bs for \$5, so that's what I use now for this sort of service. But you can't always lay hands on an 829B when you need one.

One suggestion I would have (from ugly experience) is stay away from sweep tubes at 10M. I know other people have used them successfully, but I tried a couple of times years ago and could NOT make the damned things settle down and be good.

5w to 30w is not a great deal of power gain, so stability shouldn't be tough with a tube intended to work at that frequency.

I've used 6146B's as high as 6M and never had trouble neutralizing them so they stay neutralized.

Good luck and let us know how you do.

--73--

--JD--

At 01:00 AM 1/30/97 GMT, you wrote:

>I've got an 11m rig that I'm converting to 10m and would like to  
>built a single tube amp for it. For 5w drive what tube do you  
>suggest for an output of say, 25-30w at 28 Mc? (Only requirements  
>are cheap and easily available!)

>

>Jeff KH2PZ

>

>

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Date: Thu, 30 Jan 1997 08:47:00 -0700  
From: jeffd@coriolis.com (Jeff Duntemann)  
To: glowbugs@theporch.com  
Subject: 807's & 1625's @ 10M  
Message-ID: <1.5.4.32.19970130083958.00a8ae70@165.247.88.2>

Michael and Ralph both suggest 807s or 1625's for linear service at 10m. I've never tried this, because I've read in any number of places that these tubes are very lossy above 20 Mc. Any comments from people who've "been there?"

--73--

--Jeff Duntemann KG7JF  
Scottsdale, Arizona

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End of GLOWBUGS Digest 431

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